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The Role of Banks for the Transition to Circular Economy

Virginia Zhelyazkova

Abstract

The financial system as a whole—in Europe the banks, in the USA mainly the stock exchanges—is oriented mainly towards financing the linear economy. It is the dominant economic model; the production cycles, hence the business cycles of the individual industries and products, are well known. This ensures relative predictability of the amount of expected profits they generate, and it gives the necessary degree of probability for the financial markets for the return on investment. In order for banks to provide the much-needed resource for the transformation of the linear economy into a circular one, they must undergo a major transformation. It is multi-layered and, of course, has many specific characteristics. As banks definitely play a dominant role in Europe's financing of the economy, the analysis in this paper will focus on them. Certain main trends will be presented, related to circular economy and directing to the future development of individual segments within their framework.

Keywords: circular economy, linear economy, environmental risk in lending, green bank, transformation

1. Introduction

Banks are among the main sources of capital for the activities of companies. Their role in the development of modern economic systems is leading—they redistribute funds between individual economic entities. To a large extent, they are in charge of granting credit resources and determining the conditions for financing. That is why the policies that banks adopt in this area are extremely important when it comes to the transition from a linear to a circular model of the economy.

In general, the following problem areas can be outlined for the banks that will be addressed in this paper:

- Regulatory—like all for-profit organizations, banks will naturally continue to finance the linear economy in all possible forms when it is profitable for them. In order to start restricting access to finance for activities that run counter to the circular economy, banks must be subject to at least two types of “incentives”:
 - pressure from the regulatory authorities, i.e. by the state through the central bank;

- pressure from the regulatory authorities on their customers (specific economic entities) to transform their activities. This pressure could take the form of various barriers to linear production, fines and other sanctions, which together increase the risk of losses for banks because they could not, for example, collect receivables from their customers whose products no longer have a market (due to a ban by the state on trading with the products they produce, for example, as they are the result of linear production);
- Management—the need for bank management to realize the necessity for change. This is a prerequisite for the implementation of any policy, especially when it leads to a sharp turn from the traditional way of functioning. Also, some studies emphasize that good corporate governance can lead to improved investment yield for the customers [1]. However, this awareness will emerge naturally under the pressure of change from regulators. In the context of such awareness, bank management will be able to play its key role in identifying the new products and services that institutions will start offering to individuals in the context of the transformation to circular economy. Banking activity is also associated with a number of risks inherent to the economies as a whole [2] and banks will have to start acknowledging and actively managing the whole new array of risks that are emerging, in particular the environmental and climate ones. This will take place again under regulatory pressure;
- Building and maintaining internal administrative capacity. Not only the management, but also the employees of the banks will have to acquire knowledge about the new features of circular production. This will be necessary because circular production has a different cycle and features in terms of its economic dimensions—costs, revenues, profits, life expectancy of products, etc. All these dimensions both individually and collectively affect the various characteristics of bank products—collateral values, exposure at default, probability of default, loss given default, expected losses and many others. Hence the necessity for having knowledge about them and deeper understanding about the way they interact among themselves, and when impacting bank ratios. It must be acknowledged that building such internal capacity requires time and has proven to be a lengthy process. It is challenging for banks since they need to find experts who are capable of presenting in a catchy way to bank employees the interdisciplinary matters related to circular economy and its impact on banks. It is not impossible, though, such experts to be identified, since the interest in the subject of circular economy has been growing in recent years.

2. Emergence of the concept of circular economy

Over the past hundred years, an interesting pattern has been observed. On the one hand, the consumption of resources worldwide has been increasing, but on the other hand, the way in which these resources are consumed is clearly proving its inefficiency. The inefficiency can be outlined in two spheres, which leads to two main defects of the linear model.

First, there is an uneven consumption of resources—most of them are consumed in highly developed countries at the expense of developing countries, and secondly, there is an accumulation of huge amounts of waste that are not used after being disposed of. The current economic model is linear and follows the pattern: extraction of natural resources, processing into finished products and the consumption of the products, which ends with their disposal. According to a number of studies, the

current linear economic cannot ensure the achievement of economic development by all countries in the world, as the available natural resources are insufficient for the purpose.

The circular model seeks to solve these two main defects of the linear model. The idea of this model draws inspiration from the way nature works, and in particular the individual biosystems. Just as each of them has its own cycle—birth, development, decline, death and rebirth, so do the individual systems within the economy.

Therefore, the life of a product should not end with its disposal in the form of waste that can no longer be used, but on the contrary—each product should be seen as an eternally existing set of materials, each of which, after the conditional end of the life of the given product, must be included in the creation of a new product. Thus, at some point in the future, society should reach a state where virtually no waste is disposed of, and all products are recycled or used in some way.

In order to gradually come to this point, it is not enough just to find ways to recycle individual types of goods, but to reduce the total amount of waste disposed of. In support of efforts in this direction, ways should be sought to prolong the life of products, to encourage their longer use, as well as to share the use of certain categories of goods, which would lead to a smaller number of goods in circulation.

It is difficult to determine exactly when and where the term “circular economy” itself has occurred. Today, “almost all international business operations are experiencing changes due to the pursuit of nature conservation” and efforts to make the transition from a linear to a circular model reflect this trend.

The term “circular economy” began to gain popularity in the 1970s, and gained popularity mainly due to several names.

The idea of circular material flows was first introduced in 1966 by Kenneth Bo-uldin in his study, “The Economics of the Coming Spaceship Earth”. Later, the idea of circular economy began to be seriously researched and developed by the Swiss architect Walter Stahel. In 1976, in a report to the European Commission entitled “The Potential for Substituting Manpower for Energy”, Walter Stahel and Genevieve Redey presented the concept of circular economy. In the report, they outline the main impacts that the transformation of the linear economy into a circular one will have on the creation of labor, conservation and optimization of the use of natural resources, control of nature pollution and economic efficiency. In 1982, the report was published as a book entitled “Jobs for Tomorrow: The Potential for Substituting Manpower for Energy” and its authors won the prestigious Mitchell Award.

Stahel's ideas have been further developed by Ellen MacArthur, a former world yacht record holder who founded an independent charity foundation of the same name in 2010 [3]. At the beginning of its activity, the foundation was supported by several powerful companies such as Renault, British Telecommunications, Cisco, etc., which provided funds for the implementation of the planned large-scale activities. One of the main goals of this foundation is to provoke a wide debate on the circular economy among the various economic schools, and thus the idea to gain wide popularity and gradually be adopted by governments around the world.

Two years after its establishment, in 2012, the foundation published a report, which outlined the prospects for the development of the world as a result of the transition from a linear model of the economy to a circular one. In the following year, 2013, this foundation, together with the consulting firm McKinsey, prepared and published a detailed report on circular economy and the opportunities that it offers to the consumer goods sector [4]. These reports has had a strong impact on public opinion, especially in Europe, and since 2015 the European Commission has launched an all-embrasive agenda for the transition of the economy of the union from linear to a circular one, which already shows the presence of serious awareness

among EU leaders on the issue. The concept of circular economy in EU has direct impact also on other financial institutions (insurers and pension funds) [5].

In practice, circular economy has functioned naturally from the very beginning of human activity. Technological progress made possible the extraction of huge quantities of raw materials, the creation of synthetic materials and the production of large number of goods at low prices. However, the quantity of goods has been enormously increasing, and subsequently it has turned out that some of these goods cannot be decomposed or reused in one way or another. In the process of production a number of environmentally harmful substances are released, it is necessary to build huge landfills, which in turn take over the disposed waste. As a result of these processes, the pressure on the environment increases enormously. Man is part of the biosphere and cannot be isolated from the processes that take place in it. Solving environmental problems is becoming a primary imperative of modern times.

From the middle of the twentieth century, when the shortcomings of the linear model became apparent, separate studies began to appear, as well as social movements that sought to define problems and propose solutions. This is how the concepts of eco-efficiency, systems thinking, the blue economy, industrial ecology, swing to swing and others emerged. What these separate theoretical concepts have in common is the idea of the need for transformation of the linear economic model, using examples from nature. Economy is a form of human activity, and man is an integral part of nature. It is therefore not possible for the systems he creates to function effectively under laws other than natural ones. Failure to take into account the effects of human activity on the environment, even if in the short term no serious consequences of financial nature are observed, in the medium term proves to be ineffective from an economic point of view. These theoretical concepts articulate precisely this basic feature of the linear economic model. Gradually, more and more countries around the world, led by the most developed ones, accept the need to change the model and begin to build strategies and policies in this direction.

3. Banks and circular economy

The transition from a linear to a circular model of the economy requires a number of changes in the way banks operate. This transition creates both opportunities and risks for them. A recent ING Bank study on this topic outlined the main opportunities and challenges for banks. In general, they can be linked to five main business models [6].

The first model aims at transforming production processes so that only raw materials from renewable sources or those that are subject to full recycling are used. In this way the waste will be eliminated and the depletion of natural resources will be stopped. Proponents of this model share the belief that this is the only way to move from a linear to a circular model of the economy.

The second business model concerns the re-use of the materials from which products are made to make new goods.

At the heart of the third model is the concept of extending the life cycle of products by repairing and improving them, as well as a result of additional efforts to advertise them on new markets. Extending the life of goods will not only delay their disposal in the form of waste, but will also generate profits from their sale, lease and use.

The fourth business model offers the replacement of the individual use of different goods with a collective one. For example, sharing cars, various devices, etc. This will eliminate the low efficiency inherent in the use of such goods, which when used by single individuals are often depreciated without being actually used long enough.

The fifth model offers a fundamental change in the way someone looks at goods: from an asset owned by its owner to a service that is used only when necessary. This will lead to a number of effects. On the one hand, the efficiency of the use of goods will increase. On the other hand, more people will have access to them. Third, as a result of more people using more goods, a number of ancillary markets will be created where other complementary goods and services will be offered.

As there is significant public interest in introducing different variants of the five circular models, the market for products and services related to them is generally expected to reach a net growth of between 1% and 4% in the next ten years. This is an opportunity for banks to offer their products and services and expand their customer base and market share. In addition, such a policy resonates with the intentions announced by more and more banks to support sustainable development. Research shows that customers who work in the field of sustainable development in one way or another are more innovative, demonstrate better financial results and have better credit ratings, which means lower credit risk for banks and greater security of investments. This is another reason why organizations need to stimulate innovative practices at workplace [7].

At the same time, financing of the circular economy poses a number of challenges for banks. First of all, due to the extension of the life of products, it is necessary to rethink the way of assessing the collaterals. This is naturally reflected in the risk assessment, especially the credit risk of the respective transaction and the client, and hence on all indicators relevant to the monitoring of credit risk, such as loss given default (LGD), exposure at default (EAD), probability of default (PD), and expected losses (EL).

Another important principle of circular economy related to the exploitation of goods for a longer than usual time, means not only that they need to have the functional characteristics for a longer life, but also that they need to actually circulate on the market. An example is Philips' policy to take medical equipment from its affluent customers after it has been exploited for some time and resell it on the secondary market, where there is demand from less solvent companies. Such actions are often undertaken after the equipment has been fully depreciated from an accounting point of view. This raises the question of depreciation rates for such equipment. If the company that buys it on the secondary market does so using loans where the equipment serves as collateral, the bank will have to evaluate it in some way.

Second, the tendency to prefer leased instead of owned products affects banks at least in two ways. On the one hand, they no longer have the possibility to accept the leased product as collateral for the loans, it remains the property of the company from which the bank's customer takes it for use. Therefore, banks need to rethink the model in which they finance such customers. On the other hand, using a leased item instead of buying it, actually expands the market for it, as more people can afford it.

The expansion of the market for the product in question theoretically leads to an expansion of the market for banks, but they will have to change their risk assessment schemes for this new category of customers. The expectations are that the customers who use leased goods in their main part will not be highly solvent. So banks will take additional risks when financing such clients. In addition, ownership of the commodity is unlikely to be transferred to the banks as collateral, and this will further increase the riskiness of such transactions.

Therefore, it can be said that the trend in the financing the circular model is characterized by a shift of focus from the importance of collateral to that of cash flows. Such a shift requires a complete change in the concept of banking and fundamental changes in banks' credit policies.

Third, the importance of the leasing form of financing will increase. Banks can play the role of leasing goods on a much larger scale than at present. Demand for leased goods will increase, as already mentioned, and this is an additional opportunity for banks. The challenges arising from the expansion of leasing portfolios both in terms of the types of goods offered on lease and the types of customers are related to the need to know the specifics of these goods, as well as the characteristics of customer behavior. The extension of the useful life of the goods will have to be reflected in the calculation of the risk of the clients in the leasing portfolio. On the other hand, here, as well as in the loan portfolio, banks will have to redefine their leasing policies, taking into account the extended life of goods and the relatively lower solvency of customers.

Fourth, due to changing consumer preferences on the one hand, and on the other hand, due to the growing number of regulatory requirements for business regarding its implications on the environment, banks will have to develop and integrate into their existing models for credit risk assessment, environmental risk assessment.

Monitoring the environmental risk in loan portfolios, including the leasing part, will gradually become imperative. The difficulties in this area are due to the lack of a uniform methodology for the assessment of environmental risk, which raises uncertainty that it can be correctly evaluated and unwillingness on the part of banks to start work in this direction.

Environmental risk management in real banking activities is key to banks' contribution to the development of the circular economy. As long as lending to companies that maintain the linear model and lack strategy and vision for change continues, it will be very difficult to achieve transition to a circular economy. For their part, banks are profit-oriented and this is natural—the pursuit of financial success is part of the rational thinking of every economic entity. Therefore, if there are no incentives for banks to refuse financing to highly profitable but environmentally harmful companies, they will not do so. Nor will they fund many innovative, inherently excellent ideas that support the circular model, but which are characterized by questionable, at least in the short term, profitability. Banks should not be blamed for this course of action and no change can be expected on their part without good reason.

At this stage, the picture from the point of view of banks looks as follows and this complicates the process of environmental risk management:

1. There are no regulatory requirements (Basel III, regulations of national banks) to impose on banks the obligation to monitor in detail the environmental risks associated with lending to companies. This immediately means that this activity remains in the sphere of the good will of the management of banks.
2. Banks wishing to implement an environmental risk management system face a lack of a unified methodology for doing so. At present, perhaps the most applied methodology is that of the European Bank for Reconstruction and Development (EBRD). It is clear and well developed. However, even when applied, many additional methodological issues naturally arise, stemming from the need to adapt it on the one hand to the specificities of national laws and industry classifications, and on the other hand to the specific characteristics of portfolios of individual banks.
3. A third problem, which, however, can hardly be avoided, even if there was a standardized and globally accepted methodology, is the purely technological, software integration of environmental risk assessment into the credit risk

assessment systems. This usually has to be the subject of a separate serious internal bank projects, which take a lot of resources and time, and which would be difficult to initiate, if there was no regulatory pressure to implement it.

Despite the declared desire of the countries (the European Union as a whole and each individual country as part of it, and this to a greater or lesser extent applies to all other countries in the world)—to change the model from linear to circular, at this point there are virtually no simplified and easy-to-apply tools to support this change.

The development of the five models related to the transition to circular economy, mentioned above, requires serious funding. In many cases, funding must take place before it is clear exactly what the market for a given product or service will be, whether there will be demand for it, whether consumers will want to change their habits and, if so, with what time lag in relation to the introduction of new products and services will this happen.

If we look, for example, at a model that describes the shift of consumer preferences from buying a product and paying for it to leasing it needed—when could that happen? Can the transition be made for all goods at the same time, or will it take place for some goods as soon as there is the possibility of leasing, and for others it will take years of changing consumer habits? Undoubtedly, contrary to the theory of rational thinking of economic entities, it will turn out that for some groups of goods, especially those in the luxury segment, possession will continue to be a matter of prestige and customers will keep on paying for owning them.

These are important issues that require very serious consideration in order appropriate form of financing to be found for ventures aimed at implementing new business models. It would not be realistic to expect banks to readily take the risk of experimenting with financing activities for which they themselves cannot determine, at least to some extent, the future return. Without being able to determine the expected future return on a loan, it is difficult to calculate the most important parameters for credit risk management such as PD, EAD, LGD, and EL. Therefore, the governments must intervene at least at the initial stage of the transition to circular economy, standing behind the various new ventures.

The government support can be realized in the form of state guarantees and participation in various activities. If the state creates a guarantee fund for initiatives aimed at implementing one of the five business models related to circular economy, banks would provide the necessary credit resources to entrepreneurs. Some years afterwards, when experience is gained in such projects, the answers to some of the above questions will have been established and the transition to circular economy will have gained momentum, governments will be able to withdraw.

Therefore, it can be said that banks expect governments to take the initiative to be actively involved in financing the circular economy. However, governments have no reason to expect banks to take the first step based on purely market considerations. The uncertainty in the beginning of transitional periods is too great, and it is necessary to remember that banks are conservative institutions.

Environmental risk management is not just a passive activity, consisting of the application of a procedure in which various documents of the clients are considered, or in the calculation of scoring for them on the basis of exposure parameters and other indicators. It has also a proactive part, which consists not only in assessing the customer in terms of whether he meets the existing conditions and matches the existing product range in the bank, but in developing such products and services which will meet his new needs reflect his profile.

However, in order to create such products, serious work is needed inside the banks. The necessary level of expertise must be built, which includes knowledge of

the latest market trends, customers' purchasing power, demand trends, and last but not least, the demographic characteristics of society. It should not be forgotten that young people are more likely to change their consumer habits. Middle-aged people, as well as retirees, are in most cases not among those ready to change their behavior. In order to create products that are aimed at protecting the environment in one way or another, and to find a market for these products, banks need to explore this whole range of problems, and perhaps many more, which at this stage cannot be foreseen.

4. Comprehensive environmental risk management and the green bank concept

In order for banks to contribute to the transition to circular economy, they themselves must be oriented towards it. When we talk about the environmental aspects of circular economy, at the micro level, this should mean for banks that they should be “green”, in the sense that they should regard environmental protection as their philosophy and strategy. This coincides with the introduction of a comprehensive environmental risk management system in the banks—and this system not only covers internal resource consumption and monitoring of the level of environmental risk of loans after disbursement, but is proactive in the field of development of banking products and services aimed at preservation of the environment.

There are four levels (levels) of environmental risk management in banks [8].

The first level is related to the management of this part of environmental risk, which arises from the so-called direct effects of banking activity. These effects are the consequences of the day-to-day operations of the bank, for the needs of which it uses energy from various sources, paper, and water, generates waste, etc.

The second level builds on the first and also involves the development of environmental risk management policy in the core business of the bank, in the case of European banks, mainly in the field of corporate lending (in this level we include leasing, factoring and other forms of trade finance).

The third level covers the first two and extends environmental risk management through the development of appropriate products aimed at preservation of the environment, or, this is, as mentioned above, proactive risk management.

The fourth, highest level builds on the third and presupposes the orientation of the deposit policy to sources of resources that have a proven positive attitude towards the environment.

While many banks have already reached the first and second levels, the third (especially in the area of creation of a comprehensive product policy aimed at preservation of the environment, and not just the sporadic appearance of some “exotic” banking products) and the fourth belong entirely to the future.

The International Banking Community, represented by the United Nations Environmental Program Finance Initiative (UNEP FI), recognizes the need for a fundamental change in banks' approach to the economy. In the context of this way of thinking is the Positive Impact Manifesto adopted by this organization in May 2016. It declares that banks must use their unique position as intermediaries between the real economy and capital markets and begin to reorient their business models to financing sustainable development, an integral part of which is environmental protection. The aim of this change must be the realization of an overall positive impact of their activities, which in turn is defined as “leading to a positive impact on the economy, society and the environment, after proper consideration and minimization of all negative impacts.”

A recent study, initiated by UNEP FI by the Institute for Sustainable Leadership at the University of Cambridge, outlines the main reasons why banks urgently need to take action to refocus from conventional financing to supporting the circular model through environmental risk management at all levels [9].

First of all, it is pointed out that environmental risks are increasing both in number and intensity. As a result, there is an increasing interaction between them and other socio-economic trends, which already in their entirety affect the financial stability in various places.

Secondly, a number of indirect effects of increasing environmental risks also appear. Indirect effects are related to the public response to these risks, which is often transferred to certain regulatory initiatives. All this affects the environment in which banks operate and the success of their business models.

Third, environmental risks are beginning to manifest themselves in an increasingly complex way. This is due to several reasons:

- the growing connection between the different types of environmental risks;
- uncertainty about the time horizons in which these risks will manifest themselves, their frequency and intensity;
- development of the manifestation of some of the environmental risks and the creation of various interdependencies between them over time.

A good example that illustrates these three features is the consequences observed in the United States in the 1930s as a result of the application of a number of unsuccessful agricultural practices over large areas over the previous 100 years. Dust storms, which are formed due to the disturbance of the ecological balance and the deterioration of the quality of the soils, practically ruin the economy of entire agricultural regions. Subsequently, an economic crisis ensued, leading to massive losses for farmers' creditor banks.

The importance of these risks increasingly necessitates serious regulatory action. In this direction is the study of the University of Cambridge in conjunction with UNEP FI, led by Prof. K. Alexander of the University of Zurich. The thesis defended in this study is that in all financial crises banks suffer serious losses from the underestimation of the various risks they face in their activities and urgently need to take measures to include the assessment of environmental risk in banking regulations such as those of the Basel III framework.

At this stage, Basel III requires Pillar I banks to include an assessment of environmental risks in assessing the extent to which they are exposed to credit and operational risk. In particular, paragraph № 510 of Basel II and Basel III requires banks to monitor the risk of environmental liability for collateral. It is assumed that in order to be able to carry out such monitoring, banks must undertake to carry out (including hired consultants) thorough collateral checks of individual cases of transactions with a high environmental risk. However, the requirements for monitoring the environmental risk defined in this way remain desirable and no specific requirements and rules have been set in this regard. They mainly concern the environmental risk that would arise in individual transactions (lending), but do not consider its impact in a broader, macroprudential plan.

The review of the state of regulations in relation to environmental risk management in the banking system, presented in the study of the University of Cambridge, shows that in some countries around the world national regulations in this direction are quite advanced. Of particular interest are the examples of China, Brazil and Peru.

It can be said that the Chinese Banking Regulatory Commission acts to support the development of the third level of environmental risk management—proactive—by financing environmentally sustainable projects and requiring banks in their contracts with customers to set compliance clauses of certain environmental standards. This policy was launched in 2007 by the Banking Commission and the Ministry of the Environment in the form of a document entitled “Green Credit Policies”. In 2012, the publication of “Guidelines for Green Lending”, consisting of instructions to banks on how to implement the policy and compliance with credit requirements followed.

The Commission obliges banks to collect and pass on statistics on the financing they provide to companies in the construction and transport sectors. Through these statistics, the Commission, together with the Ministry of Environment, monitors the country's progress in achieving national environmental goals. Another interesting feature of the requirements introduced in 2012 to banks is the obligation to monitor whether their customers comply with environmental standards and laws and to sanction them in case of violations by making changes to loan agreements. The main sanction that is applied is a requirement for early repayment of loans, in the event that after establishing the violation and subsequent warning, the client does not take corrective action within the period specified by the bank. In case of proven non-compliance with the environmental legislation, a client may be denied a loan at all. Another measure aimed at orienting companies to environmental projects is the granting of loans for non-environmentally friendly projects at higher interest rates, as well as generally difficult access to financing from banks.

The Commission obliges banks to incorporate the assessment and monitoring of environmental risk in their overall activity, which includes auditing the data.

Brazil is the next example of proactive environmental risk management by banks as a result of regulatory requirements, but China is ahead in this regard. In 2014, the Central Bank of Brazil issued a guidance document on the application of the Basel III Pillar II requirements for asset reviews and process assessments in banks, requiring them to take into account the extent to which they are exposed to environmental and social risk. This document also requires banks to prepare and disclose environmental and social risk reporting in their portfolios, dressing it in the form of following the Basel III Pillar III regulations. Penalties are envisaged for non-compliance with this requirement.

The approach of the Financial Regulator in Peru differs from that of the Chinese and Brazilian central banks. It definitely deserves to be defined as innovative and aimed at creating a lasting culture of assessment and management of environmental and social risk both among banks and the corporate world in the country. The Peruvian regulator requires from banks to prepare a report on the environmental and social risks associated with the project before funding is granted. Only after the report is considered together, of course, with the other documents of the company applying for a loan, and after the bank is convinced that the risks are acceptable, can the process of financing start. According to a 2014 report by the director of the Peruvian regulator, Dr. Daniel Szydlowski, this requirement has led to a significant improvement in the overall financial risk in Peru and the number of bad loans has decreased significantly [Ibidem].

5. Conclusion

Unlike China, Brazil and Peru, the most developed countries in the world have not created regulations to encourage proactive management of environmental risk and hence—lending to projects aimed at protecting the environment and thus encouraging the transition to circular economy.

It is necessary to think not only about the manifestation of environmental risks at the transaction level or at individual client level, but also at macro level in order to be able to make a comprehensive assessment of how and in what way the banking system is exposed to them and therefore to what extent it contributes to the transformation of the linear model into circular one.

In addition to regulations such as the Basel III rules, Prof. K. Alexander and his team propose to consider ways for the state to support projects aimed at protecting the environment with monetary policy instruments. Since the protection of the environment should be state priority, then it is natural for it to purposefully allocate money in this direction, with banks playing the role of intermediaries.

This idea provoked mixed reactions from representatives of individual countries during its discussion in the framework of the study that UNEP FI issued. For some countries, such policy is appropriate, while for others it seems to have the potential for destabilization. For example, China has taken a similar approach, while Brazil and Peru fear that declaring some kind of quantitative easing to help the environment could be interpreted by capital market investors as a sign of volatile monetary policy. The world is already witnessing an experiment by the Lebanese Central Bank, which by Decree № 7835 decided to grant special liquidity to the country's banks to be used for disbursing lending to various green investment activities.

The monetary policy approach to stimulate green lending is generally more complex and unlikely to be easily adopted by most central banks around the world, mainly because of the divergent market reactions that follow each market quantitative easing.

In a nutshell, it can be said that in the field of assessment, monitoring and disclosure of information on environmental risk at this stage there is no standardization internationally, as well as mandatory requirements for banks to monitor this risk. The existing requirements in Basel III are vague and general. The way they are formulated allows banks to circumvent the monitoring of environmental risk, giving priority to clear financial benefits for themselves in financing various transactions.

Therefore, the current state of regulations in most of the world encourages the overlooking of environmental risks. This is due to the lack of sufficient understanding of the problem at macro level. Proof of this are the examples of China, Brazil and Peru. These countries have specific requirements for banks in terms of environmental risk management and the results of this policy, as shown by the practice in Peru, are encouraging. The Chinese authorities, on the other hand, have come to a profound understanding that the economy of this huge developing country would not have a sustainable future if the imperatives of the environment were ignored. This has pushed them from now on to set strict requirements for both banks and companies from all sectors of the economy to comply with environmental legislation. Serious sanctions, which are provided in cases of violations, are a good enough incentive for market participants to follow the laws. In this way, as in Peru and Brazil, China is working to build a holistic culture in a society centered on environmental protection.

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Author details

Virginia Zhelyazkova
VUZF University, Sofia, Bulgaria

*Address all correspondence to: vzhelyazkova@vuzf.bg;
virginia.zhelyazkova@gmail.com

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